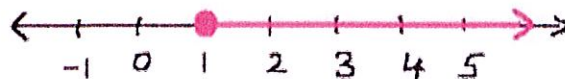


Name: Solutions

1. Write the graphed number set in both **inequality** and **interval** notation.

Inequality Notation:

$$x \geq 1$$



Interval Notation:

$$[1, \infty)$$

2. Write the graphed number set in both **inequality** and **interval** notation.

Inequality Notation:

$$-1 < x \leq 4$$



Interval Notation:

$$(-1, 4]$$

3. Graph the set of numbers $(-\infty, -1] \cup (2, 8]$ and write the set in inequality notation:

$$x \leq -1 \text{ or } 2 < x \leq 8$$



4. Solve the inequality $7 - 3x \geq 2x + 9$ and graph the solution set.

$$7 - 3x \geq 2x + 9$$

$$7 \geq 5x + 9$$

$$-2 \geq 5x$$

$$-\frac{2}{5} \geq x \quad x \leq -\frac{2}{5}$$

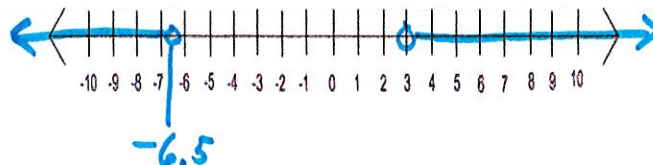


5. Solve the inequality $5 + 2x < -8$ or $4 - x < 1$ and graph the solution set.

$$5 + 2x < -8 \text{ or } 4 - x < 1$$

$$2x < -13 \text{ or } -x < -3$$

$$x < -6.5 \text{ or } x > 3$$

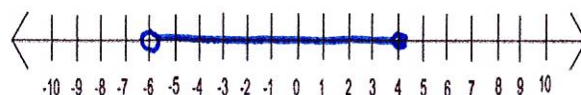


6. Solve the inequality $5 < \frac{1}{2}x + 8 \leq 10$ and graph the solution set.

$$5 < \frac{1}{2}x + 8 \leq 10$$

$$-3 < \frac{1}{2}x \leq 2$$

$$-6 < x \leq 4$$



7. Graph the line with points $(-3, 6)$ & $(9, 2)$, and determine an equation of the line in point slope form.

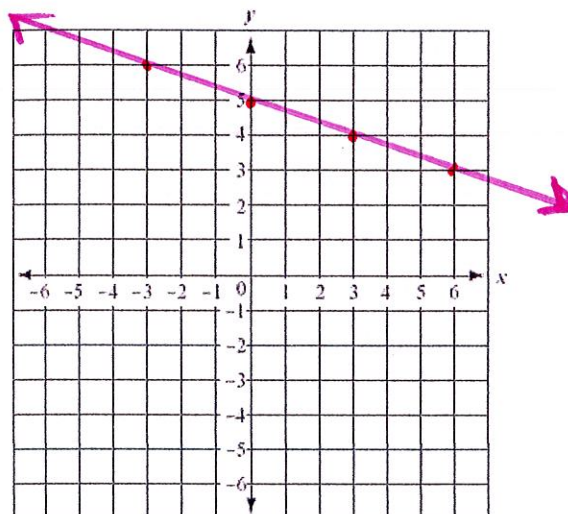
$$m = \frac{2-6}{9-(-3)} = \frac{-4}{12} = -\frac{1}{3}$$

plot $(0, 5)$, $(3, 4)$, $(6, 3)$

$$(9, 2) \quad y - 2 = -\frac{1}{3}(x - 9)$$

$$y = -\frac{1}{3}x + 3 + 2$$

$$y = -\frac{1}{3}x + 5$$



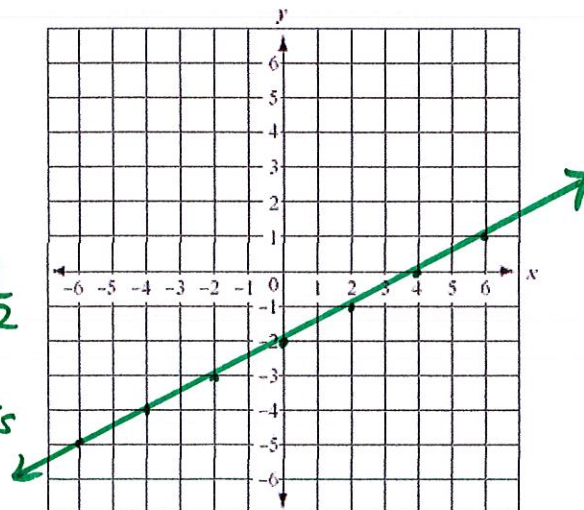
8. Graph $2x - 4y = 8$ (plot several points and draw your line neatly)

x	y
0	-2
4	0

Plot $(0, -2)$ & $(4, 0)$

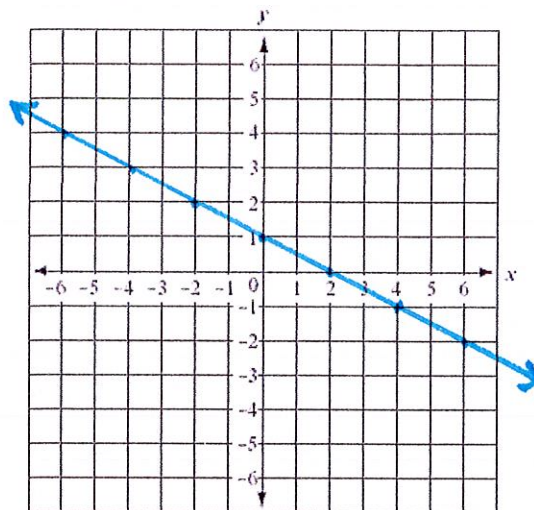
you can see the slope is $m = \frac{2}{4} = \frac{1}{2}$

Use the slope to find other points



9. Given the line shown, write an equation in slope-intercept form $y = mx + b$ first, then convert the equation to standard form $Ax + By = C$

$m = -\frac{1}{2}$ use any point
I chose $(0, 1)$



$$y = -\frac{1}{2}x + 1$$

$$2y = -x + 2$$

$$x + 2y = 2$$

10. Given a line containing the points $(-3, 5)$ and $(9, 1)$, find an equation of the line in point-slope form first, then convert the equation to slope-intercept form.

$$m = \frac{1-5}{9-(-3)} = \frac{-4}{12} = -\frac{1}{3}$$

use either point. I chose $(9, 1)$

$$y - 1 = -\frac{1}{3}(x - 9)$$

$$y = -\frac{1}{3}x + 3 + 1$$

$$y = -\frac{1}{3}x + 4$$

11. The two given equations represent lines. Are the lines parallel or Perpendicular or neither? Explain briefly why. $3x - 4y = -4$ & $-6x + 8y = -24$

$$3x - 4y = -4$$

$$-4y = -3x - 4$$

$$y = \frac{3}{4}x + 1$$

$$-6x + 8y = -24$$

$$8y = 6x - 24$$

$$y = \frac{6}{8}x - 3$$

$$y = \frac{3}{4}x - 3$$

The lines are parallel since the slopes are $\frac{3}{4}$

12. Line A has equation $y - 7 = \frac{1}{5}(x + 3)$. Line B contains the point $(1, -4)$ and is perpendicular to line A. Determine an equation for line B in any form you choose.

Line A has slope $\frac{1}{5}$. Line B has slope $m = -5$

Line B: $y - (-4) = -5(x - 1)$ $y + 4 = -5(x - 1)$